

# PATENT COOPERATION TREATY

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### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

14 JUL 2004

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>IP20030115RP</b>	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/NO 2003/000014</b>	International filing date (day/month/year) <b>16.01.2003</b>	Priority date (day/month/year) <b>16.01.2002</b>
International Patent Classification (IPC) or national classification and IPC <b>B63B 35/16</b>		
Applicant <b>Sintef Fiskeri og havbruk AS et al</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☒ (sent to the applicant and to the International Bureau) a total of 5 sheets, as follows:
    - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

Date of submission of the demand <b>08.08.2003</b>	Date of completion of this report <b>02.04.2004</b>
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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International Application No.

PCT/NO 2003/000014

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1-15 \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☒ the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* 1-5 \_\_\_\_\_ received by this Authority on 30.01.2004

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☒ the drawings:

pages 1-17 \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International Application No.

PCT/NO 2003/000014

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-28</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-28</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-28</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: SU 1681800 A1  
D2: GB 1555437 A  
D3: DE 839164 C  
D4: WO 8100664 A1

The invention relates to a trawl vessel and a method for trawl catching. The invention has been restricted by the amended first and 25th claim filed with the letter of 2004-01-30. Particularly by adding to the independent claim 1 that the trawling vessel is provided with a ceiling, covering generally all of a lock chamber, and that a forward trunk channel runs through said ceiling, and that an aft trunk channel extends up through the ceiling from an aft end the lock chamber, arranged for the entire, or an aft part of said trawl sack, in a generally discharged state, to be pulled up through said aft trunk channel. And by adding to the method in the independent claim 25 that the trawl net is hauled over a transverse roller near the sluiceway, and that the trawl sack is then separated from the trawl sack, whereby the trawl sack and the trawl sack extension is hauled in separately through said sluiceway. This makes it unobvious to a person skilled in the art to modify the trawl net discharging system in D1 in such a way that the claimed invention according to the amended first and 25th claim is obtained.

The cited documents represent the general state of the art and the invention defined in amended claims 1- 28 is not disclosed by any of these documents.

Accordingly, the invention defined in the amended claims 1- 28 is novel and is considered to involve an inventive step. The invention is industrially applicable.

## Claims

1. A trawling vessel for use with a trawl net (5) for catching marine bio-resources, with a trawl sack (3) attached aft on a trawl net (5) for keeping  
5 the catch, said vessel comprising lines (51, 61) for towing and hauling said trawl net (5) and trawl drums (6) for hauling said trawl net (5);  
with a lock chamber (1) in a stern (21) of said vessel, said lock chamber (1) having a main portion of its volume below said design water line of said vessel, said lock chamber (1) being arranged for hauling said  
10 trawl sack (3) with the catch from the sea, through a sluiceway (2) in said stern (21), and said lock chamber (1) being arranged for discharge of said trawl sack (3) and for temporarily keeping said catch; and  
with a trunk channel (16,12) leading up from said lock chamber (1) and being arranged so that said trawl sack (3), in a generally discharged  
15 state, may be hauled up through said trunk channel (16, 12) to a deck (24), thereby leaving said catch in said lock chamber (1);  
characterized by  
a ceiling (18) covering generally all of said lock chamber (1), with a forward trunk channel (16) running through said ceiling (18);  
20 an aft trunk channel (12) extending up through said ceiling (18) from an aft end of said lock chamber (1), arranged for the entire, or an aft part (32) of said trawl sack (3) in a generally discharged state, to be pulled up through said aft trunk channel (12).
- 25 2. The vessel of claim 1,  
having a forward trunk channel (16) leading up from a forward end of said lock chamber (1) and arranged so that said trawl sack (3), in a generally discharged state, may be hauled up through said forward trunk (16)  
channel to a deck (24), leaving said catch in said lock chamber (1).
- 30 3. The vessel of claim 1,  
having trawl winches (62) for said lines (51, 61) for towing and hauling said trawl net (5).
- 35 4. The vessel of claim 1,

said lines being port and starboard lines (51, 61), said lines provided with port and starboard trawl doors (60sb, 60p) arranged on said port and starboard ancillary lines (51, 61) respectively, for spreading port and starboard front ends (53, 54) of said trawl net (5).

5

5. The vessel of claim 1, in which said mainly water-filled lock chamber (1) being for hauling said trawl net (5) in addition to said trawl sack (3) with the catch, from the sea, through said sluiceway (2) to said lock chamber (1).

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6. The vessel of claim 1, having a widened upper mouth of said trunk channel (16, 12) for facilitating using either starboard or port trawl winches (6sb, 7sb, 6p, 7p) for hauling said net (5) or said trawl sack (3).

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7. The vessel of claim 1, said sluiceway (2) also being arranged mainly below said vessel's design water line in said stern (21).

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8. The vessel of claim 1, having a lock gate (9) for closing and opening said sluiceway (2).

9. The vessel of claim 1, said sluiceway (2) arranged near a centreline in said stern (21).

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10. The vessel of claim 1, stern being a transom stern (21).

11. The vessel of claim 1, a trawl sack extension (35) arranged between said trawl net and said trawl sack (3).

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12. The vessel of claim 1, with a pulling line (8) arranged for being attached to a forward end (31) of said trawl net (5) or said trawl sack (3) or said trawl sack extension (35), for hauling said trawl sack (3) into said lock chamber (1).

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13. The vessel of claim 12, in which said pulling line (8) is arranged for being extended from a net drum (7) arranged on a trawl deck (10), through said forward trunk channel (16) and through said lock chamber (1), by means of a conveyor device (13a, 13b).

5

14. The vessel of claim 12, in which said pulling line (8) is arranged for being extended from a net drum (6, 7) and at least through the lock chamber (1) and through said aft trunk channel (12) and said sluiceway (2).

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15. The vessel of claim 1, having a transverse roller (20b) in deck level at the top of said stern (21), for guiding the trawl net during ejection.

16. The vessel of claim 1, having a lock canal (4) arranged between said sluiceway (2) and said lock chamber (1), said lock canal (4) having a somewhat smaller cross-section area than the cross-section area of said lock chamber (1).

17. A vessel according to claim 1, in which a lower lock chamber storage sump (1b) arranged in a widened portion in said lock chamber (1), with a lock chamber floor (19) being arranged deeper than a lower part of said sluiceway (2), and a horizontal grating (1c).

18. A vessel according to claim 16, in which the lock chamber (1) is widened forward of said lock canal (4) and above said grating (1c) and said lock chamber storage sump (1b) arranged for providing space for fish being discharged from said trawl sack through said zips (33h, 33sb, 33p).

19. The vessel according to claim 1, said trawl sack (3) having one or more horizontal zips (33h) in either starboard or port side of the trawl sack (3), to release the catch sideways.

20. A vessel according to claim 1, with a baffle plate (9b) arranged to be moved to block a part of the lock chamber's (1) cross-section between

said lock canal (4) and said lock chamber (1), for attenuating sloshing in said lock chamber (1).

21. A vessel according to claim 1, with a submerged hind part (41) of the vessel's bottom (22) and stern (21), in which said submerged hind part (41) envelopes the sluiceway (2).

22. A vessel according to claim 1, having an inspection trunk or shaft (14) running through the lock chamber ceiling (18), mainly over the middle portion of the lock chamber (1), for inspecting and manual handling of the trawl sack (3), possibly manual splitting of the trawl sack (3) if a release line for the zip (33h, 33sb, 33p) at the trawl sack (3) cannot be released via a release line through the forward or aft trunk.

23. A vessel according to claim 1, in which a portion of the lock chamber ceiling (18) arranged to extend below the vessel's waterline so that a free surface of any essential size on the water in the lock chamber (1) are attenuated.

24. A vessel according to claim 1, having one or more sluiceways (2) arranged to the side of said vessel's centreline, in said stern (21).

25. A method for trawl catching of marine bio-resources, with a vessel comprising trawl winches (62) and trawl drums (6) for ejecting and hauling a trawl net (5) and ancillary lines (51, 61), with a trawl sack (3) attached to the trawl net (5), said trawl sack (3) arranged for keeping the catch, characterized in

hauling said trawl sack (3) containing the catch, from the sea, through a sluiceway (2) mainly below said vessel's waterline, to a lock chamber (1) having a water volume being mainly below said vessel's waterline, and releasing said catch along zips (33h, 33sb, 33p) in the trawl sack (3), through a grating to a lock chamber storage sump (1b); and hauling in said trawl net (5) over a transverse roller (20b) near the sluiceway (2), and the trawl sack is then separated from the trawl sack (3)

and possibly the trawl sack extension (35), whereby the trawl sack and the trawl sack extension is hauled in separately through said sluiceway (2).

26. The method according to claim 25, in which the trawl sack is .  
5 opened along a vertical zip (33v) and hauled up through a forward or aft trunk channel so that the catch is kept in the lock chamber, and that the fish is pumped out of the lock chamber by means of a fish pump to e.g. either a storage or for refining on board the vessel.
- 10 27. The method according to claim 25, using a trawl sack extension (35) arranged between the trawl sack (3) and the trawl net (5).
- 15 28. The method according to claim 25, using trawl doors (60) which are disconnected from the hauling lines (51, 61) before hauling the trawl net on board the vessel.